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Exchange bias inducing temperature¹ ALEXEY DOBRYNIN, RUSLAN PROZOROV, Ames Laboratory and Department of Physics & Astronomy, Iowa State University, Ames IA 50011 — Characteristic temperatures governing behavior of ferromagnetic - antiferromagnetic (F-AF) heterostructures are discussed. The inducing temperature, T_{ind} , at which the easy direction of magnetization is established, is in general case different from the maximum temperature at which exchange bias may exist T_B (blocking temperature) and the Néel temperature of the antiferromagnet T_N . The case of $T_{ind} < T_N$ suggests presence of a frustrated interfacial AF spin structure in the system, otherwise $T_{ind} = T_N$. If $T_B = T_{ind} < T_N$, the interfacial F-AF interactions are stronger than that between the interfacial AF spins and the rest of the AF part, assuming rotation of those spins during the magnetization reversal. The exchange bias value in this case is determined by the latter AF exchange coupling. In the case of $T_B < T_{ind} < T_N$, the interfacial AF spins stay stable, and the exchange bias field is determined by the interfacial F-AF coupling.

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☒ Prefer Oral Session
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